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1.0 PURPOSE

To outline the organization, responsibilities, reporting requirements and criteria for implementing the Trend Program within the FME Project Controls system.

The primary objective of the Trend Program is to establish and maintain the agreed-upon baseline project scope, quality, cost, and schedule of projects by tracking and controlling changes (trends). The Trend Program also conveys an understanding of project evolution, as well as preventing cost and schedule surprises. It is essential to document early the scope and assumptions in all estimates.

The success of the Trend Program requires the active involvement of the entire FME project team, including department managers, DST Project Managers, and the DST project team members.

The Trend Program allows the project team to expeditiously:

- Identify and document customer requested changes
- Segregate the project growth into two categories; scope changes and non-scope changes
- Identify changes in design, quality and services
- Identify required changes to the project Estimate At Completion (EAC)
- Improve project and customer communication
- Explain cost and schedule variances
- Take corrective action before deviations are irrevocably included in the project
- Consider cost saving alternatives
- Optimize project execution activities

2.0 GENERAL

The Trend Program is an integral part of the project controls system. This procedure applies to changes or deviations to the approved FME cost, schedule, and technical baselines.

2.1 RESPONSIBILITIES

The **NCI Contracts Officer (CO)** is not directly responsible for the trend approval process. However, trends that develop during the design of the project will be included with the Fiscal Estimates to describe any changes that occurred to the original scope of work. The approval of the Fiscal Estimates (FA) by the CO also indicates a concurrence with the trends that are included within that package.

The **Directorate/Division Customer (DC)** is responsible to approve the updating of the work order Budget At Completion (BAC) by approving all scope change trends greater than $5,000. The DC also ensures that adequate funding is available to complete the change to the existing work order scope when the Contract Officer Approval (COA) is received for that change.

The **FME Director** is responsible to review and internally approve all scope change trends greater than $100K.

The **FME Deputy Director** is responsible to review and internally approve all scope change trends between $25K and $100K.

The **Project Controls (PC) Manager** is responsible to review and internally approve, prior to submittal to the Directorate/Division Customer, all trends less than $25K. The PC manager is also responsible for coordinating the overall implementation of the Trend Program.

The **Directorate Support Team (DST) Project Manager** is responsible to work with the project team to identify any changes (trends) to the project scope (technical requirements, cost, or schedule) and review the overall scope and estimate for each trend. The DST PM also will coordinate with the Directorate/Division Customer to review and obtain approval for all scope change trends greater than $5,000.

The **Engineering Manager** is responsible to review and approve the engineering scope and budget for all scope change trends greater than $5,000.

The **Operations and Maintenance Manager** is responsible to review and approve the scope and budget for any trends to shop work orders when the scope change trend is greater than $5,000.

The **Trend Engineer** is responsible for understanding the project budget and scope, monitoring project development, supporting the project team in flagging all deviations from budget and evaluating trends. Responsibilities for the trend engineer:

- Facilitate the training and familiarization of the trend process with project team members
- Facilitate the initiation and development of trends with all project team members
- Review and coordinate trends with the project scheduler for determination of potential schedule impacts
- Coordinate the cost and schedule impacts with the DST Project Manager
- Prepare and maintain the FME Trend Register
- Coordinate with the Project Cost Analyst to ensure smooth implementation of Trend data into the FME Database

The **Project team members** are responsible for actively supporting the Trend Program. Responsibilities include:

- Being familiar with the scope (technical requirements, cost, and schedule) of the Work Order
- Notify the trend engineer or DST PM of any deviations from the current baseline of the Work Order
- Provide definition of the trends and support documentation.

2.2 DEFINITIONS

Approval authorization for execution – The NCI CO is not directly involved with the trend approval process. However, as trends are developed and incorporated into COA packages, the COA is required before work can be executed.

> "A COA is required when a change (modification) to a particular subcontract exceeds either $5,000 or the cumulative amount of all modifications exceed 10% of the original subcontract amount. Any modification to an approved subcontract that will cause the subcontract amount to exceed the MSR [Maintenance Service Request or Work Order] ceiling for the project shall also be submitted for COA."

Approval authorization to update the baseline – The Directorate/Division Customer is responsible to approve any increase to the current work order baseline (BAC) for all scope change trends greater than $5,000 or otherwise requires a COA.

Current Baseline – [also known as Budget at Completion (BAC)] the approved project scope, cost, and schedule recognized by the Directorate/Division customer. It includes all project costs, schedule, and technical requirements that have been identified in the approved Conceptual Estimate (CE) plus any approved scope change trends. The current baseline is the basis for the identification of variances and deviations as the project progresses. The current baseline will not be updated or revised at Fiscal Approval unless a Scope Change Trend is the basis for change at Fiscal Approval.

Directorate/Division Customer - the counterpart to the DST PM responsible for Directorate program activities. The approval of the Directorate/Division Customer is required for all scope change trends greater than $5,000 in order to add these changes to the current baseline.

Estimate at Completion (EAC) – the projected forecast of the future final cost of the work order.

Trend - an item of potential change to the current baseline scope of the Work Order. This is any item of change (technical requirements, cost, or schedule) that causes an addition or reduction to the current baseline of the work order.

Trend Base (Initial Baseline) - the original scope (technical requirements, cost, and schedule) for the Work Order contained in the approved Conceptual Estimate.

Trend Forecast - the initial baseline for the work order plus all trends (Scope Change and Non Scope Change). Note this may be different than the Work Order EAC due to untrended changes during the life of the work order. Significant differences between the trend forecast and the work order EAC will require a trend.

Trend Register - a comprehensive database and reporting of all project trends. It organizes trends into the various categories and approval stages to assist in timely review and resolution by the DST Project Manager and team.

Trend Cause – There are several general types of trends that describe the primary cause of the trend.

- User Request – A change requested or required by the Directorate/Division Customer
- Unforeseen Condition – A change that was not known or could not have been known prior to the approval of the scope and commencement of work
- Planned Change – Typically a subcontract award or modification where the work is initially identified but the actual subcontractor is not known at the time of the estimate and but is identified at a later date.
- Design Evolution – Changes to the design of the work order that develop during the design process.
- Omission – Cost, schedule, or technical requirements that were not included in the original estimate.
- Error – Cost, schedule, or technical errors in the original estimate that affects the current estimate.
- Administrative Change – a zero Cost change which typically transfers cost/budget from one resource to another (eg. a budget change from Construction to Equipment).
- Redesign – changes associated with additional design efforts when the scope of the work order or the technical requirements change after the design has commenced.

Trend Disposition – The status and "disposition" of a trend can have one of three possible choices; open, cancelled, or closed.

- A trend is "open" after it is initiated but before it is approved.
- A trend can be "cancelled" if the DST PM determines that the change will not be realized and that no trend was needed (the trend number will be re-used).
- A trend will be "closed" after the trend has been approved and entered into the database (the trend number will not be re-used).

Scope Change Trend – an additional change (trend) required by the customer that is not included in the current baseline scope (technical requirements, cost, or schedule). The EAC is immediately updated when a scope change trend is initiated and entered into the system. The Work Order baseline or BAC is updated after the scope change trend is approved by the

Directorate/Division Customer. The scope change trend(s) will be included with the Fiscal Estimate package. When the Contract Officer approves (COA) this estimate the work may be implemented/executed.

Non-Scope Change Trend – any change (trend) that is not a modification to the current baseline scope (technical requirements, cost, or schedule) of the work order. This type of trend will update the EAC but will not update the current BAC. The Directorate/Division Customer (DC) is not required to approve this trend. However, at the DST PM's discretion, it can be provided to the DC to ensure timely communication of the trend and to resolve any possible funding issues.

Resolved Trend – a trend (scope change or non-scope change) that is approved or cancelled.

Unresolved Trend - a trend that requires further action prior to resolution. All trends must eventually be resolved, however only scope change trends will update the work order Baseline.

Budget Transfer Trend – an administrative change within the work order to move budget between resource elements when it has a net effect of zero cost change to the work order. A budget transfer from management reserve to another resource element must obtain approval similar to the approval process for scope change trends by the appropriate managers as defined in the responsibilities for the respective managers.

3.0 TREND PROCEDURE

3.1 PROCESS

1) A project team member identifies a change in the scope (technical requirements, cost, and schedule) of the new trend and provides a write-up with supporting documentation describing the change.
2) The trend engineer will prepare a Rough Order of Magnitude (ROM) estimate with input from the DST PM and project team
3) Enter the trend into the system and update the work order EAC
4) Approval Authorization (see Definitions) will be obtained (coordinated by the Trend Engineer
5) After approval, update the work order Baseline (BAC) if it is a Scope Change
6) Resolve Trend (three possibilities)
   A – Cancellation – no change to the Baseline (BAC) or EAC
   B – Scope Change – Update Baseline (BAC) and EAC
   C – Non-Scope Change – Update EAC
7) Obtain FA or COA from the Contract officer
8) Implement/execute the new work

3.2 TREND DEVELOPMENT

The following information should be identified for all trends:

- State if the trend is a scope change affecting the technical requirements, cost,or schedule.
- Provide a full description of the change and the justification for the change.
- Provide the budget changes in hours by department and costs broken down into the different resource elements
- Identify schedule impacts if any and the client milestones that are affected by the change.

3.3 PROJECT CLOSEOUT

The primary purpose of the trend program during the closeout stage is to be able to identify and have documented any significant changes to the final cost related to the current baseline.

- Accounting efforts to match the costs "to the penny" are not required.
- When the final work order cost reflects an underrun to the trend forecast a closeout trend should be prepared to reduce the projected to go cost estimates to zero in order for the EAC to match the final costs.
- When the final work order cost reflects an overrun to the trend forecast, a closeout trend should be prepared if the overrun exceeds either $50,000 or 10% of the current work order baseline (Note: this is not the same as the $5,000 COA limit for contract execution). The purpose for this trend is to document the primary cause for the additional cost to complete the work order.

3.4 REPORTING AND EVALUATING TRENDS

- Significant changes from the current baseline will be reported.
- Trends should be documented as early as possible.
- The trend engineer will prepare the trend and enter it in the system.
- A copy of the trend notice can be obtained from the trend engineer.
- When a change is observed, a trend notice (Attachment C) is initiated, approved by the DST Project Manager and transmitted to the trend engineer. The trend engineer will review the trend notice for completeness and make the appropriate entries in the system. The trend engineer will work with the project team members to develop the ROM scope, cost and schedule.
- Trend evaluations are to be inclusive of the entire project scope of work covering all project activities engineering, procurement, construction, as well as an assessment of non-labor cost items such as equipment, material and supplies.

3.5 FORMATS

The trend report will be sorted by DST Project Manager and by Work Order.

3.6 REPORT DISTRIBUTION

The trend report will be distributed to the following team members:

- Director
- Deputy Director
- Engineering Manager
- Project Controls Manager
- DST Project Managers
- Operations and Maintenance Manager

4.0 REFERENCES

5.0 ATTACHMENTS

Attachment A - Trend Program Flowchart
Attachment B - Trend Register
Attachment C - Trend Form
Attachment D – Trend Approval Process